

AMENDMENTS TO THE ABSTRACT:

A high-sensitivity SPR (surface plasmon resonance) sensor includes at least a prism having a first surface on which a metallic layer and a dielectric layer having metallic ~~nanoparticle-layer~~ nanoparticles (metallic nanoparticle layer) are sequentially formed. A light source projects an incident light into the prism through a second surface of the prism. The light is reflected by the metallic layer and the metallic nanoparticle layer and leaves the prism through a third surface of the prism. A light detector detects the reflected light. The SPR sensor has an extensive detection range as compared with the conventional ones and is applicable in the detection of gas, chemical substance, and biomolecule. Moreover, the SPR sensor is advantageous in arranging fabrication process consistently, controlling film thickness, improving product quality, and decreasing fabrication cost.